

EXHIBIT E

ENGINEER'S REPORT
of the
MATTHEW REYNOLD'S CLAIM

By:

Brian O'Donel, P.E.

September 6, 2021

REYNOLD'S CLAIM

ENGINEER'S REPORT

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1.0 INTRODUCTION

On or about November 5, 2020, Mr. Matthew Reynolds (Reynolds) was terminated from his position as a maintenance manager for Willert Manufacturing Co. located in Douglasville, Pennsylvania.

The purpose of my investigation was to determine if the Willert Manufacturing facility contained recognized hazards to which Reynolds could be exposed.

I am a Professional Engineer, licensed by the Commonwealth of Pennsylvania, among other States and am employed by Robson Forensic, Inc. to provide technical investigations, analysis, reports and testimony toward the resolution of litigation involving industrial, manufacturing, facilities, facility safety and safety compliance as well as maintenance management and electrical and chemical management and machinery safety. I have more than 30 years of experience in industrial operation and safety including Facilities Engineering and Maintenance Management as well as employee hiring. I have experience in both the utility side (Electricity Generating Station) and Use/Customer side (Manufacturing Facility).

2.0 AVAILABLE INFORMATION

- 2.1 Plaintiff's Complaint
- 2.2 Plaintiff Expert Report by Michael Lo Presti, dated July 22, 2021
- 2.3 Maintenance Manager Job Description
- 2.4 My Facility Inspection of August 30, 2021
- 2.5 Deposition Transcript of Matthew Reynolds, August 26, 2021
- 2.6 Willert Manufacturing's Answer to Plaintiff's Complaint
- 2.7 Plaintiff's Response to Defendant's Request for Production of Documents
- 2.8 Documents produced by Plaintiff in response to Defendant's Request for Production of Documents
- 2.9 Plaintiff's Response to Defendant's Interrogatories

2 BACKGROUND

3.1 Willert Manufacturing facility and operation

The Willert Manufacturing Co. is a home products and chemical product production facility located at 447 Old Swede Road, in Douglasville, PA. The approximately 86,000 sq. ft. facility includes many electrical driven production molding machines and support equipment, chemical storage, mixing, and processing equipment, and approximately 70 employees. Willert Manufacturing is also a generator of hazardous wastes from their chemical processes.

3.2 Job Description

Reynolds was being considered for maintenance manager of the Willert facility including supervision of a 4 member staff (2 on 1st shift, 1 on 2nd, 1 on 3rd), such that he would cover and do some of the same maintenance work and be exposed to similar hazards across all 3 shifts. The job description lists "Maintenance Managers oversee the repairs, installations and upkeep of various machines, and power equipment associated with all parts of the production of liquid fill manufacturing. The main duties include designing maintenance procedures, tracking budgets and expenses, and performing inspections on different machines and equipment to find problems and make repairs or replace as needed. Monitors operation of plant equipment and systems. Reviews the operation of plant equipment and systems constantly, to minimize unplanned downtime, anticipate solve problems in a timely manner, and to identify opportunities for improvement. Maintains and repairs maintenance shop equipment. Maintains safety, health, and environmental policies and procedures. Ensures city, county, state, and federal regulations relating to the maintenance department are met at all times." which entails working around and with facility and production equipment, including electrical supply and disconnects. The job also requires equipment Lock-Out management requiring the working with and control of hazardous energy both individually and with the maintenance personnel. The job also requires the management of and interaction with the facility manufacturing processes which includes many electrical driven machines and chemicals including listed and hazardous wastes.

3.3 Facility hazards

The facility contains electrical hazards 2500/3333 KVA XFMR 13.2 KV/480V electrical supply service disconnect switchgear, disconnects, switchgear/breakers and transformer to 480 Volt plant voltage. The facility contains numerous electrical equipment including motors and disconnects, all of which have the possibility of fatal exposure if the worker is not alert, is impaired, or is using poor judgement.

The facility also stores and processes listed chemicals (ie corrosion hazards) as well as hazardous wastes.

The facility also contains thermal hazards (gas fired boilers and plant steam, 375 degF molding equipment), compressed air hazards (100 psi plant air), confined spaces, machine motion hazards, and numerous maintenance machines (saws, welding and burning, lathe, drill, brake/bender).

3 THE INCIDENT AND COMPLAINT

On or about November 5, 2020, Mr. Matthew Reynolds was terminated from his position as Maintenance Manager. Reynolds contends that he was terminated due to a failed drug test and because he is a medical marijuana patient.

4 ANALYSIS

The Willert Manufacturing workplace contains recognized hazards warranting safe practices and alertness/unimpaired focus and related good judgement by the Maintenance Manager. The plaintiff has not demonstrated that the Willert Manufacturing workplace was safe for impaired employment.

Willert Manufacturing is responsible to provide a safe workplace for their employees, which would have included Reynolds, as well as the employees whose safety would have been affected by the actions/judgements of the maintenance manager.

OSHA 5a1 **SEC. 5. Duties**

(a) Each employer --

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees

Drug testing is done by Willert Manufacturing, like many/most employers for employee and workplace safety.

Workplace Drug Testing: Weighing the Pros and Cons, by Lisa Nagele-Piazza, J.D., SHRM-SCP (SHRM resource/Society for Human Resource Management), January 21, 2020; states;

"Companies that value risk mitigation should really consider a drug-free-workplace program," Simo suggested. Drug testing is effective in preventing accidents, health issues and costs, absenteeism, and litigation, he said, noting that screening can also protect employees from injury and improve productivity.

Think About the Job's Safety Risks "I find, in general, that employers that want to do drug testing usually have some employees who are performing dangerous or safety-sensitive jobs," Russo said, noting that if employees in some jobs came to work impaired, they could seriously harm themselves or others.

The National Safety Council Accident Prevention Manual for Business & Industry, Administration & Programs, 13th Edition states:

Workers involved with alcohol or drugs are estimated to be caught up in work-related accidents three to four times as often as other workers.

Professional Safety, Medical Marijuana, Addressing Impairment in the Workplace, August 2018 states;

Safety & Health Implications

Medical marijuana use may impact injuries and illnesses. National Institute on Drug Abuse (NIDA, 2018) found that employees who tested positive for marijuana experienced 55% more mishaps and 85% more injuries than those who tested negative. Medical professionals have proven that marijuana use declines one's perception of risk and impairs attentiveness, motor coordination and reaction time (CDC, 1982; 2018). These effects can impact the safety of an impaired employee while performing the job and put the individual at elevated risk for health effects, such as respiratory illness and memory-retention problems (Azofeifa, Mattson & Grant, 2016).

Marijuana impairment may also impact productivity and other business operations (Phillips, Holland, Baldwin, et al., 2015). Marijuana users are known to be absent and tardy from work 75% more often than nonusers (NIDA, 2018), resulting in inexperienced personnel performing tasks more frequently while having a higher risk of injury to themselves and others.

The safety in the workplace priority is the safety of the individuals as well as the collective workforce and in consideration of recognized workplace hazards. Workplace safety is required and driven by numerous organizations, standards, guidelines, and publications, such as OSHA, NSC, ANSI, NFPA, NEC, EPA, UL, etc.

Founded in 1913 and chartered by the U.S. Congress in 1953, and with local Chapters, global networks, and more than 50,000 members, the National Safety Council (NSC) has been the nation's leading safety advocate for more than 100 years. The mission of NSC is to save lives by preventing injuries and deaths at work, in homes and communities, and on the road through leadership, research, education and advocacy.

The National Safety Council defines a **Hazard** as "Any existing or potential condition that, by itself or by interacting with other variables, can result in death, injury, property damage, or other loss".

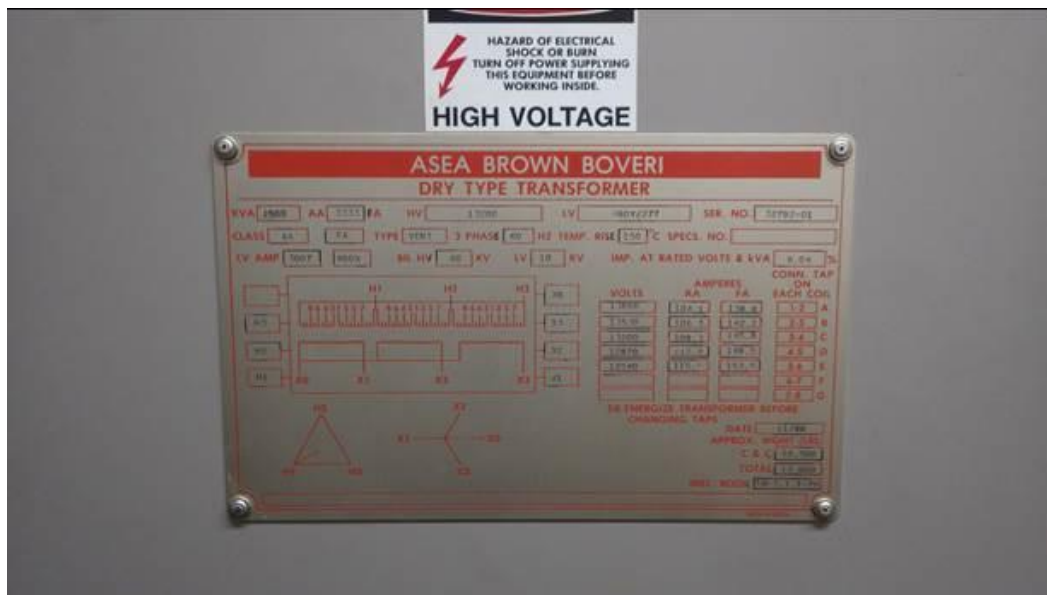
The National Safety Council (NSC) defines an **Accident Cause** as: "Hazards and those factors that, individually or in combination, directly cause accidents." From the Accident Prevention Manual for Business & Industry, Engineering & Technology, 13th ed. p.1075.

Reynolds could have been exposed to the facility workplace recognized hazards of;

- Electrical equipment including high voltage, switchgear, control cabinets, disconnects, arc flash, batteries and battery rooms
- Lock out and equipment maintenance responsibilities and related machine hazards
- Chemicals and chemical process equipment, chemical wastes
- Thermal exposures in boilers, plant steam, process equipment/molding

Facility/Workplace Electrical Hazards

Some examples of electrical hazards include:



2nd Floor Station (13,200 Volts), Transformer to 480 Volts, 1st Floor Junction Box



Switchgear 600 Volts/400 Amps, Main Plant Breaker Panel (480 Volt, 600 Amp)



1st Floor Switchgear, Fischer Production Equipment, Battery Charge Rm (DC)

High voltage is not clearly defined but generally accepted as over 600 volts (which does exist inside the subject facility) but it is also recognized that exposure to both high or lower voltage could be fatal. It should be noted that the actual electrical arc hazard is based on available energy/power (Volts X Amps), not available voltage.

Merriam-Webster defines high-voltage;
Marked by great energy: electric, dynamic

NFPA 70E, Electrical Safety in the Workplace, states;
This standard addresses safety of workers whose job responsibilities involves interaction with energized electrical equipment and systems with potential exposure to electrical hazards.

Shock Hazard. A source of possible injury or damage to health associated with current through the body caused by contact or approach to energized electrical conductors or circuit paths. Informational Note: Injury and damage to health resulting from shock is dependent on the magnitude of the electrical current, the power source frequency (e.g., 60 Hz, 50 Hz dc), and the path and time duration of current through the body. The physiological reaction ranges from perception, muscular contractions, inability to let go, ventricular fibrillation, tissue burns, and death.

high voltage (over 1000 volts).

(F) Confined or Enclosed Work Spaces. When an employee works in a confined or enclosed space (such as a manhole or vault) that contains exposed energized electrical conductor or circuit parts operating at voltages equal to or greater than 50 volt or where an electrical hazard exists, the employer shall provide, and the employee shall use, protective shields, protective barriers, or insulating materials as necessary to avoid inadvertent contact with these parts and the effects of the electrical hazards.

320.3 Safety Procedures. (Batteries and Battery Rooms)

(A) General Safety Hazards.

(I) Energy Thresholds. Energy exposure levels shall not exceed those identified in the following list unless: appropriate controls are implemented:

- (1) AC: 50 volts and 5 milliamperes
- (2) DC: 100 volts

ICI General. Electrical injuries represent a serious workplace health and safety issue to electrical and non-electrical workers. Data from the U.S. Bureau of Labor Statistics (BLS) indicate that there were nearly 6000 fatal electrical injuries to workers in the United States from 1992 through 2012. BLS data also indicate that there were 24,100 non-fatal electrical injuries from 2003 through 2012.

About 98 percent of fatal occupational electrical injuries are electrical shock injuries. A corporate case study examining electrical injury reporting and safety practices found that 40 percent of electrical incidents involved 250 volts or less and were indicative of a misperception of electrical safety as a high voltage issue.

Studies by high-risk industries indicate that human error is often a root cause of incidents. The premise of this annex is that human error is similarly a frequent root cause of electrical incidents. In occupational health and safety terms, an incident is an occurrence arising in the course of work that resulted in or could have resulted in an injury illness, damage to health, or a fatality (see ANSI/AIHA Z10-2012, Definition of Incident).

130.6 Other Precautions for Personnel Activities.

(A) Alertness.

(1) When Electrical Hazards Might Exist. Employees shall be instructed to be alert at all times when they are working within the limited approach boundary of energized electrical conductors or circuit parts operating at voltages equal to or greater than 50 volts and in work situations when electrical hazards might exist.

(2) When Impaired. Employees shall not be permitted to work within the limited approach boundary of energized electrical conductors or circuit parts operating at voltages equal to or greater than 50 volts, or where other electrical hazards exist, while their alertness is recognizably impaired due to illness, fatigue, or other reasons.

WORKER DEATHS BY ELECTROCUTION, A Summary of NIOSH Surveillance and Investigative Findings U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES Public Health Service Centers for Disease Control and Prevention National Institute for Occupational Safety and Health, (NIOSH) May 1998, states;

Electrical injuries may occur in various ways: direct contact with electrical energy, injuries that occur when electricity arcs (an arc is a flow of electrons through a gas, such as air) to a victim at ground potential (supplying an alternative path to ground), flash burns from the heat generated by an electrical arc, and flame burns from the ignition of clothing or other combustible, nonelectrical materials. Direct contact and arcing injuries produce similar effects.

It is also possible to have a low-voltage electrocution without visible marks to the body of the victim.

The NEC describes high voltage as greater than 600 volts AC.

Contact with 20 milliamps of current can be fatal. As a frame of reference, a common household circuit breaker may be rated at 15, 20, or 30 amps.

**FATALITY ASSESSMENT AND CONTROL EVALUATION (FACE) SUMMARY
REPORT ABSTRACTS, 1982-1994 ELECTROCUTIONS**

92-12 Powerline worker electrocuted when he grasped an energized jumper wire he apparently believed to be deenergized. Victim impaired by marijuana, using no personal protective equipment. Assigned to repair section of lines plagued by intermittent outages.

The National Safety Council Accident Prevention Manual for Business & Industry, Engineering & Technology, 14th Edition, Chapter 8, Electrical Safety states;

When electrical panels contain energized components of different voltages, workers must be qualified for the highest voltage encountered. NFPA 70E, Electrical Safety Requirements for Employee Workplaces, requires that anyone who is unqualified must stay at least 42 in. from exposed circuits greater than 50 V (OSHA says 35 in').

This electrical energy is measured in volts and may also be referred to as electromagnetic force (EMF). Low voltage can be an ambiguous term depending upon a person's knowledge and the application. OSHA and the NFPA use the expression "low voltage" to refer to all systems 600 V or less, and "high voltage" is defined as anything above 600 V. These terms are often misused in casual conversation. While 480 V is considered "low voltage" anyone who has come in contact with a 480-V circuit may have a different perspective.

Power companies have slightly different definitions. They consider low voltage to be up to 600 V, medium or mid-voltage to be from 500 V to 69 kV, high voltage to be up to 230 kV, extra-high voltage to be up to 765 kV, and ultra-high voltage to be up to 1,100 kV (ANSI C84.1, 2011). For most safety professionals and workers, the terms high and low voltage will suffice. While voltage itself does not cause injury (current and resistance do the damage), voltage provides the necessary push that forces the current to flow. According to many medical studies, potentially hazardous voltage is anything above 24 V. OSHA and NFPA regulations state that any energized parts greater than 50 V must be protected to prevent workers from contact. A car battery may be only 12 V of direct current (DC), but in a dead short, it can release very hazardous energy due to the amperage available.

It is estimated that 50 mA (AC) is sufficient to cause ventricular fibrillation.

The Willert Manufacturing facility did contain high voltage switchgear (13,200 Volts) as well as 480 Volt service of high amperage that would cause a fatality, and which could

certainly be characterized as “marked by great energy”. Reynolds could have been exposed to these electrical hazards as part of employment at Willert Manufacturing.

Facility/Workplace Chemical Hazards

The facility does also contain chemical hazards which include:

- Process Chemicals
- Corrosive Chemicals
- EPA Listed Chemicals
- Hazardous Wastes



Process and Corrosive Chemicals



The facility contains chemicals, some EPA listed, some Hazardous by Characteristic



Maintenance shop parts washer, hazardous solvent

The National Safety Council Accident Prevention Manual for Business & Industry, Administration & Programs, 13th Edition states:

For example, some industrial chemicals, when improperly handled, represent serious hazards to health, property, and the environment.

The facility contains chemicals some listed (EPA List of Lists), some hazardous, all requiring workplace safety by alert employees using good judgement.

Machine Motion and Facility Maintenance Hazards

The Willert Manufacturing facility contained numerous production machines, molding/blow molding machines, conveyance equipment, and maintenance shop equipment with numerous machine motion hazards. Maintenance personnel, including the maintenance manager could be exposed to these hazards as part of troubleshooting, maintenance, and servicing actions.



Machine Motion, thermal, and crush hazards



Boiler thermal hazard, Machine Safety Lock-Out, Welding and other Maintenance Equipment Hazards



Facility, Equipment, and Process Maintenance Hazards

Impairment (lack of alertness/bad judgement)

The Willert Manufacturing facility and workplace contains recognized electrical, chemical, and machine hazards that Reynolds could have been exposed to in the facility. Impairment, lack of alertness, bad judgement could and would expose Reynolds as well as other employees through his actions to these recognized hazards, resulting in injury or death.

National Safety Council Accident Prevention Manual for Business & Industry, Administration & Programs, 13th Edition, states;

Most companies now have some type of substance abuse screening and referral or treatment programs in place. Abuse of alcohol and drugs greatly affects a worker's job performance, places other workers at greater risk, and costs industry several billion dollars a year in lost time, accidents, and lower productivity.

Medical Marijuana in the Workplace Challenges and Management Options for Occupational Physicians Robert S. Goldsmith, MD, MPH, FACOEM, Marcelo C. Targino, MD, MPH, FACOEM, Gilbert J. Fanciullo, MD, MS, Douglas W. Martin, MD, FACOEM, FAADEP, FAAFP, Natalie P. Hartenbaum, MD, MPH, FACOEM, Jeremy M. White, JD, and Phillip Franklin, MD, MPH, MBA states

SAFEGUARDS FOR MEDICAL MARIJUANA USE AMONG WORKERS

Given the variables inherent in the use and effects of marijuana, it may be impossible to ensure safety among workers.

The Willert Manufacturing Maintenance Manager would be responsible for the maintenance of the plant equipment and processes across 3 shifts, which could expose him and others to numerous recognized hazards including but not limited to high voltage, electrical energy capable of electrocution, EPA listed chemicals being processed on the machines he would be tasked to service and maintain, associated chemical wastes, thermal hazards and machine hazards.

Plaintiff's expert Michael Lo Presti, PE references ANSI C84.1-2020 to support his opinions. ANSI C84 focuses on utility side, Reynolds is clearly not a generation/transmission worker. Willert Manufacturing is the customer side with supply voltage to the facility switchgear labeled at 13,200 volts to 480 Volt plant use.

ANSI C84.1-2006, American National Standard For Electric Power Systems and Equipment-Voltage Ratings (60 Hertz), states;

1 Scope and purpose

1.1 Scope This standard establishes nominal voltage ratings and operating tolerances for 60-hertz electric power systems above 100 volts. It also makes recommendations to other standardizing groups with respect to voltage ratings for equipment used on power systems and for utilization devices connected to such systems.

2 Definitions

2.1 system or power system: The connected system of power apparatus used to deliver electric power from the source to the utilization device. Portions of the system may be under different ownership, such as that of a supplier or a user.

Mr. Presti has not shown that Reynolds would not have been exposed to the hazards nor that Willert Manufacturing violated any applicable industrial standards in this matter.

6.0 FINDINGS

Within the bounds of reasonable engineering and workplace safety certainty, and subject to change if additional information becomes available, it is my opinion that:

- 6.1 Willert Manufacturing facility contained recognized electrical, chemical, thermal, and machine hazards.**
- 6.2 The subject job and facility had the potential for exposure to recognized workplace hazards, which would have been dangerous with drug impairment.**
- 6.3 As the Maintenance Manager Reynolds would have been in control of many or all of these recognized hazards.**
- 6.4 Plaintiff's Expert Mr. Presti has not shown that Reynolds would not be exposed to or in control of recognized workplace hazards.**



Brian O'Donel, P.E.